CLAIMS

1. A high-strength austenitic stainless steel strip excellent in flatness of shape with Vickers hardness of 400 or more, which has the composition consisting of C up to 0.20 mass %, Si up to 4.0 mass %, Mn up to 5.0 mass %, 4.0-12.0 mass % Ni, 12.0-20.0 mass % Cr, Mo up to 5.0 mass %, N up to 0.15 mass % and the balance being Fe except inevitable impurities under the condition that a value Md(N) defined by the formula (1) is in a range of 0-125, and a dual-phase structure of austenite and martensite which involves reversion austenitic phase at a ratio more than 3 vol.%.

$$Md(N)=580-520C-2Si-16Mn-16Cr-23Ni-26Cu-300N-10Mo\cdots\cdots(1)$$

2. The austenitic stainless steel strip defined in Claim 1, which further contains at least one or more of Cu up to 3.0 mass %, Ti up to 0.5 mass %, Nb up to 0.50 mass %, Al up to 0.2mass %, B up to 0.015 mass %, REM (rare earth metals) up to 0.2 mass %, Y up to 0.2 mass %, Ca up to 0.1 mass % and Mg up to 0.10 mass %.

3. A method of manufacturing a high-strength austenitic stainless steel strip excellent in flatness of shape with Vickers hardness of 400 or more, which comprises the steps of:

providing an austenitic stainless steel strip having compositions consisting of C up to 0.20 mass %, Si up to 4.0 mass %, Mn up to 5.0 mass %, 4.0-12.0 mass % Ni, 12.0-20.0 mass % Cr, Mo up to 5.0 mass %, N up to 0.15 mass %, optionally at least one or more of Cu up to 3.0 mass %, Ti up to 0.5 mass %, Nb up to 0.50 mass %, Al up to 0.2mass %, B up to 0.015 mass %, REM (rare earth metals) up to 0.2 mass %, Y up to 0.2 mass %, Ca up to 0.1 mass % and Mg up to 0.10 mass %, and the balance being Fe except inevitable impurities under the condition that a value Md(N) defined by the formula (1) is in a range of 0-125;

solution-heating said austenitic stainless steel strip;

cold-rolling said austenitic stainless steel strip to generate a deformation-induced martensite phase; and

re-heating said cold-rolled austenitic stainless steel strip at 500-700°C to induce reversion, by which an austenitic phase is generated at a ratio of 3 vol.% or more in a matrix composed of said deformation-induced martensite phase.

$$Md(N)=580-520C-2Si-16Mn-16Cr-23Ni-26Cu-300N-10Mo\cdots\cdots(1)$$

4. The method of manufacturing a high-strength austenitic stainless steel strip with Vickers hardness of 400 or more defined in Claim 3, wherein the austenitic stainless steel strip is re-heated in a state charged with a load of 785Pa or more.